

ABSTRACT OF THE DISCLOSURE

An asymmetrical channel implant from source to drain improves short channel characteristics. The implant provides a relatively high V_T net dopant adjacent to the source region and a relatively low V_T net dopant in the remainder of the channel region. One way to achieve this arrangement with disposable gate processing is to add disposable sidewalls inside the gate opening (after removing the disposable gate), patterning to selectively remove the source or gate side sidewalls, implant the source and drain regions and remove the remaining sidewall and the proceed. According to a second embodiment, wherein the channel implant can be symmetrical, a relatively low net V_T implant is provided in the central region of the channel and a relatively high net V_T implant is provided in the channel regions adjacent to the source and drain regions.